

CLAIMS

What is claimed is:

1. A high strength multi-component alloy, expressed in terms of atoms based on the total number of atoms of the alloy, comprising:

- 5 a % Fe, $5 \leq a \leq 35$;
- b% Co, $5 \leq b \leq 35$;
- c% Ni, $5 \leq c \leq 35$;
- d% Cr, $5 \leq d \leq 35$;
- e% Cu, $5 \leq e \leq 35$; and

10 f% Al, $5 \leq f \leq 35$;

 wherein $a + b + c + d + e + f \leq 100$.

2. The high strength multi-component alloy of claim 1, further comprises at least a secondary element other than Fe, Co, Ni, Cr, Cu and Al, in an amount within the range of 0.01-4.5 atom% based on the total number of atoms of the alloy.

15 3. The high strength multi-component alloy of claim 2, wherein the secondary element is selected from the group consisting of molybdenum, tungsten, niobium, tantalum, scandium, titanium, vanadium, manganese, zirconium, boron, carbon, nitrogen and silicon.

 4. The high strength multi-component alloy of claim 1, wherein the respective atomic percentages of Fe, Co, Ni, Cr and Cu are 13-19% based on the total number of atoms of the alloy.

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5. A high strength multi-component alloy, expressed in terms of atoms based on the

total number of atoms of the alloy composition, comprising:

a % Fe, $5 \leq a \leq 35$;

b% Co, $5 \leq b \leq 25$;

c% Ni, $5 \leq c \leq 35$;

5 d% Cr, $5 \leq d \leq 25$;

e% Cu, $5 \leq e \leq 25$; and

f% Al, $5 \leq f \leq 35$;

wherein $a + b + c + d + e + f \leq 100$.

10 6. The high strength multi-component alloy of claim 5, further comprises at least a secondary element other than Fe, Co, Ni, Cr, Cu and Al, in an amount within the range of 0.01-4.5 atom% based on the total number of atoms of the alloy.

7. The high strength multi-component alloy of claim 5, wherein the secondary element is selected from the group consisting of molybdenum, tungsten, niobium, tantalum, scandium, titanium, vanadium, manganese, zirconium, boron, carbon, nitrogen and silicon.